

The 1998 Revision of the Consumer Price Index

The Consumer Price Index (CPI) is the principal source of information concerning trends in consumer prices and inflation in the United States and is one of the Nation's most important economic indicators. The measure is used by the private sector to adjust contract amounts and other payments among individuals and organizations. It is also used by the Federal Government to adjust payments to Social Security recipients, to Federal and military retirees, and for a number of entitlement programs such as food stamps and school lunches. An increase in the CPI increases Federal statutory obligations for these payments and programs. Individual income tax brackets and personal exemptions are adjusted for inflation using the CPI.¹

The CPI is a measure of price change for a fixed market basket of goods and services of constant quantity and quality purchased for consumption. Consumers change their purchasing patterns in response to relative price changes, new product distribution patterns and marketing techniques, population and other demographic changes, and changes in consumer preferences. The CPI samples and weights are updated about every 10 years to reflect these changes and to maintain the Index as an accurate measure of current price inflation. The next revision in the market basket will

occur in January 1998; other elements in the revision are expected to be completed in 2000. Included will be the reselection and reclassification of areas, items, outlets, and the development of new systems for data collection and processing.

Numerous methodological improvements in the CPI have taken place both within and without the revision framework (table 1).

History of the CPI

The CPI was developed during World War I to help establish cost-of-living adjustments for workers in shipbuilding centers because prices were increasing so rapidly. Regular publication of a national index began in 1921, based on an expenditure pattern corresponding to the 1917-19 period. Since then, the Bureau of Labor Statistics (BLS) has updated (or revised) the CPI five times (table 2). Each revision, in addition to updating expenditure weights because people's buying patterns had changed substantially, brought important methodological innovations that improved the Index's accuracy and representativeness.

The 1998 Revision

Effective with publication of CPI data for January 1998, movements in the Index will be based on 1993-95 consumer expenditures. These data will be used to calculate new expenditure weights. The 1998 market baskets will reflect new geographic area samples, new item structure, new outlets in which items are priced, and new expenditure weights.

¹In fiscal year 1996, each 1-percent increase in the Index produced a \$5.7 billion increase in outlays and a \$2.5 billion decline in revenues.

Table 1. Improvements to the Consumer Price Index

Change	Date implemented	Description
New construction	1966	Rent samples augmented with units built after 1960.
Quality adjustment of new automobile prices	1967	New automobile prices adjusted for quality differences after model changeovers.
Sample rotation	1981	Introduced a systematic replacement of outlets between major revisions.
Rental equivalence	1983	Changed homeowners' component from cost of purchase to value of rental services for CPI-U.
Return from sale price imputation	1984	Introduced procedure to eliminate downward bias for items discontinued by outlets that went out of index with discounted prices.
Rental equivalence	1985	Changed CPI-W homeowners' component to value of services.
Enhanced seasonal products methodology	1987	Enhanced methodology used for seasonal items by expanding the number of price quotations to select products from alternate seasons and eliminate under-representation of such items.
Quality adjustment of used car prices	1987	Prices of used cars adjusted for differences in quality after model changeovers.
Aging bias correction	1988	Rental values adjusted for aging of the housing stock.
Imputation procedures for new cars and trucks	1989	Price changes for noncomparable new models are imputed using only the constant-quality price changes for comparable model changeovers.
Quality adjustment of apparel prices	1991	Regression models used to adjust apparel prices for changes in quality when new clothing lines are introduced and eliminate bias due to linking product substitutions into the CPI.
Discount air fares	1991	Substitution rules modified to expand pricing of discount airline fares.
Sample augmentation	1992	Increase in the number of outlets from which prices are collected to replace sample lost through sample attrition.
New models imputation	1992	Refined imputation methods used when introducing products into the CPI.
Hotels and motels	1992	Samples for hotels and motels quadrupled to reduce variances related to seasonal pricing.
Seasonal adjustment	1994	Procedures for seasonal adjustment revised to eliminate residual seasonality effects.
Quality adjustment for gasoline	1994	Treat "reformulated" gasoline as a quality change and adjust the price to reflect quality difference. Impact of the change estimated.
Generic drugs	1995	Introduced new procedures that allow generic drugs to be priced when a brand drug loses its patent.
Food-at-home base period prices	1995	Introduced seasoning procedures to eliminate upward bias in setting of base period prices of newly initiated items.
Rental equivalence	1995	Modified imputation of homeowners' implicit rent to estimate the upward drift property of the current estimator.
Composite estimator used in housing	1995	Replaced current composite estimator with a 6-month chain estimator. Under-reporting of 1-month rent changes had resulted in missing price change in residential rent and homeowners' equivalent rent. Old estimator also produced higher variances.
Commodities and services base period prices	1996	Extended food-at-home seasoning procedures to remainder of commodities and services series. Base period priced left unchanged in most noncomparable substitutions.

Source: Greenlees, J.S. and Mason, C.C., 1996, Overview of the 1998 revision of the Consumer Price Index, *Monthly Labor Review* 119(12):3-9.

Table 2. Previous CPI revisions

Release of revised CPI	Expenditure base period	Notable innovations
1940	1934-36	Introduced the concept of a sample of cities and items, and the principle of imputation
1953	1950	Expanded population coverage to represent all urban wage earner and clerical worker families
1964	1960-61	Expanded population coverage to represent individuals as well as families; introduced computer processing
1978	1972-73	Expanded population coverage to represent all urban consumers; improved methodology for construction of outlet sample frame; introduced probability sampling techniques into the selection of the item and outlet samples
1987	1982-84	Expanded scope of systematic outlet rotation; introduced advanced sample allocation model

Source: Greenlees, J.S. and Mason, C.C., 1996, Overview of the 1998 revision of the Consumer Price Index, Monthly Labor Review 119(12):3-9.

Table 3. Major milestones in the 1998 CPI revision

Milestone	Date
Introduce revised hospital services item structure and sample	February 1997 (index for January 1997)
Introduce new geographic sample and item structure and update expenditure weights to 1993-95	February 1998 (index for January 1998)
Begin pricing of new housing sample using computer-assisted data collection	June 1998
Introduce new housing sample and estimator into CPI	February 1999 (index for January 1999)
Rebase CPI to 1993-95 = 100	February 1999 (index for January 1999)
Introduce computer-assisted data collection for commodities and services sample	Summer 1999
Begin shift from area sample rotation to item category rotation using telephone Point-of-Purchase Survey	Early 1999
Enter redesigned Consumer Expenditure Survey processing system into full production	October 1999

Source: Greenlees, J.S. and Mason, C.C., 1996, Overview of the 1998 revision of the Consumer Price Index, Monthly Labor Review 119(12):3-9.

Geographic Area Sample

The geographic sample selection process uses stratified sampling to represent the U.S. urban population. There will be 87 primary sampling units based on the 1990 decennial census, replacing the current ones that are representative of the 1980 U.S. population distribution. Of these, 36 will be new, with new outlet and item pricing samples for the 1998 revised Index. The remaining 51 are carried over from the current CPI geographic sample.

Item Structure

The present seven major groups of goods and services will be restructured into eight major groups with the creation of the “education and communications” group. This new category includes components previously included in the “recreation” and “housing” groups.

New Outlets

An expanded and re-estimated CPI sample optimization model will promote the selection of relatively fewer outlets and more items per outlet. Also, there will be a broad shift in relative sample size away from the food and beverages category and the other major groups.

Publication Strategy

BLS will continue to publish overlap indexes based on both the new and the old item structure and expenditure weight for several months beginning in February 1998. This will permit users to see firsthand the revision’s effect on the published rate of inflation. Effective with the index for January 1999, the official base for the CPI will change from a 1982-84=100 to a 1993-95=100 reference base.

Housing

Two revisions will be implemented for the January 1999 Index. The new estimator for owners’ equivalent rent will be based on the reweighting of the same rental observations that are used for the residential rent index. In the current CPI estimator, implicit rents for a sample of owner-occupied units are estimated by matching those units to specific rental units. The new method will not require selection of an owner-occupied sample. The second revision will be the selection of a new housing unit sample using the 1990 decennial census. In addition, new housing units constructed since the last census will be brought into the CPI housing sample through an augmentation process.

Several other changes will be incorporated in the Index. The medical care component will be extensively revised, consolidating the hospital and related services category. Pricing procedures will change from pricing individual items to pricing combined sets of goods and services provided on selected patient bills. Other technological enhancements for the 1998 CPI, with expected start dates, are shown in table 3.

BLS will continue to enhance its program of experimental indexes and research on CPI measurement issues. Nevertheless, the decennial revision process remains the primary way by which BLS maintains the quality of the CPI—thus ensuring the status of the Index as the most accurate and timely measure of changes in consumer prices.

Source: Greenlees, J.S. and Mason, C.C., 1996, Overview of the 1998 revision of the Consumer Price Index, *Monthly Labor Review* 119(12):3-9.